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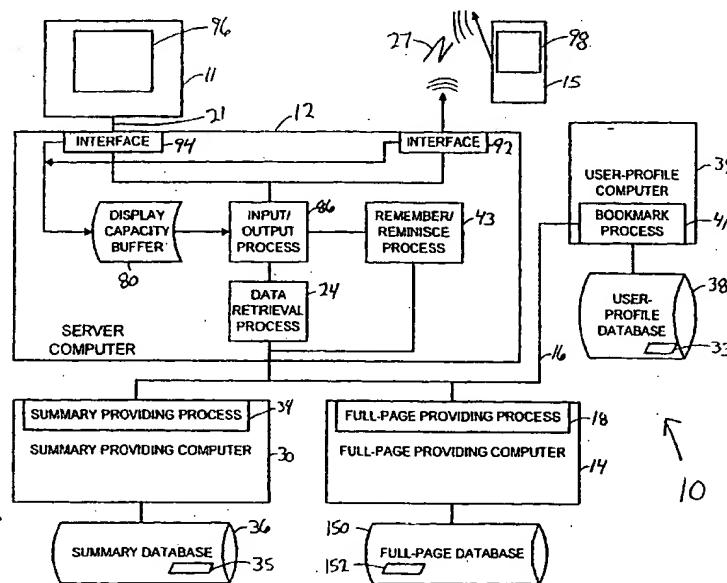
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(54) Title: INTERACTIVE MARKING AND RECALL OF A DOCUMENT



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(57) Abstract: A method (10) for saving a location of a web page for later recall includes serving a first version (30) of the web page to a client (11 or 15); and in response to a client input, storing information identifying a location from which a second version (14) of the web page is available.

WO 02/059734 A1



- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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INTERACTIVE MARKING AND RECALL OF A DOCUMENT

FIELD OF INVENTION

The invention relates to software associated with internet navigation, and in particular, to software for the marking and recall of documents or other information.

BACKGROUND

10 Web pages are typically viewed using a personal computer system having a full-size computer monitor for displaying data. However, it has become increasingly common to use mobile, internet-enabled devices. Unfortunately, the mobility of such devices often comes at the expense of their displays. The display area on the displays such mobile devices, herein referred to as "miniature displays", can be much smaller than the full-size
15 displays of a conventional computer systems.

20 Some servers of web pages can determine that a client requesting data is a mobile device having a miniature display. When such a server determines that a client has a full-size display, it serves a full-page version of the web page. When the server determines that a client has a miniature display, it instead serves an summary page version of the web page.

25 The summary page version of a web page is typically an abbreviated, or summarized version of the full page version. In many cases, the content of the summary page is so highly abbreviated that it becomes difficult to determine the content of the full-page that it purports to summarize. In those cases, a user may find it necessary to actually open the full-page version of the web page. A user who does so is then faced with enduring the tedium of scrolling through the full-page version of the web page using a miniature display.

30 A user having little patience for scrolling through the full-page version with a miniature display will often wait until a full-size display is available. However, this requires that the user remember the URL of the desired page. One way to do this is to cut and paste the URL to a clipboard and save it as a file for later recall. This is a multi-step procedure that is often too much trouble. Another way to do this is to simply jot down the URL and type it into a browser window later on. However, the length of many URLs makes this approach error-prone.

5 **SUMMARY**

The invention enables a user viewing a web page on a first device to save the location of that web page and later recall that location using a second device. Whether the web page is viewed with the first or second device, an appropriate version of the web page is served to that device.

10 In one practice of the invention, a method for saving a location of a web page for later recall, the method includes serving a first version of the web page to a client; and in response to a client input, storing information identifying a location from which a second version of the web page is available.

15 In one aspect of the invention, serving a first version of the web page includes detecting hardware used by a client and requesting a first version of the web page, the first version having content consistent with the detected hardware. This first version of the web page is then served to the client. The first version can either be retrieved from a database or generated in real time by using the second version of the web page.

20 The first version of the web page can be a summary version of the web page designed for viewing on a miniature display and the second version of the web page can be a full-page version of the web page designed for viewing on a conventional display. However, in a broader sense, the invention is intended to include selecting a version of the web page from two or more available versions and to do so on the basis of characteristics of a requesting computer.

25 In another aspect of the invention, the detection of hardware used by the client includes the detection of the client's display capability. This can include, for example, determining that the display is a miniature display.

These and other features of the invention will be apparent from the following detailed description and the accompanying figures, in which:

30 **DESCRIPTION OF DRAWINGS**

FIG. 1 illustrates a system for carrying out the invention;

FIG. 2 illustrates a conventional display showing a full-page version of a web page and miniature displays showing full-page and summary versions of the

5 web page; and

FIG. 3 shows a reminisce window.

DETAILED DESCRIPTION

FIG. 1 shows an example of a system 10 incorporating the invention. The illustrated system 10 includes a server 12 that communicates with clients, such as a 10 desktop computer 11 and a hand-held computer 15, over a global computer network. The desktop computer 11 typically communicates with the server 12 over a land-line link 21. In contrast, the hand-held computer 15 typically communicates with the server over a wireless link 27.

15 The server 12 is also in communication with a full-page providing computer system 14 over an internet connection 16. The full-page providing computer system 14 maintains full-page versions of a web page. Examples of full-page providing computer systems include corporate information sites having web pages with links to other web pages within the site, search engine sites that dynamically generate web pages of links in response to user search queries, retailer sites containing pages of links leading to 20 descriptions of articles for sale, and government sites containing pages of agency information or documents.

25 The desktop computer 11 includes a conventional display 96 sized to accommodate the full width of a typical web page. In contrast, the hand-held computer 15 typically includes a miniature display 98. The miniature display 98 is often so small that only a limited portion of a typical web-page can be displayed at any time. As a result, the user of a hand-held computer 15 must painstakingly scroll both horizontally and vertically to view a typical web-page.

30 To alleviate the tedium of scrolling through a typical web page using a miniature display 98, the server 12 includes an interface 92 configured to detect the display limitations of the hand-held computer 15 and to store information indicative of these limitations in a display-capacity buffer 80. On the basis of information in the display-capacity buffer 80, the server 12 selects between serving a full-page version of the web page and an abbreviated summary version of the web page. The summary version of the web page is sized to accommodate the miniature display 98 of the hand-held computer

5 15.

When the server 12 detects a request for a web page, an input/output process ("I/O process") 86 executing on the server 12 transmits the address of the requested web page, along with the display capacity information from the display-capacity buffer 80, to a data-retrieval process 24. If the display capacity information indicates that the requesting 10 client has a conventional display, the data-retrieval process 24 issues a request to the full-page providing process 18. The full-page providing process 18 retrieves the full-page version 152 of the web page from a full-page database 150 and returns it to the data-retrieval process 24. The data-retrieval process 24 then transmits the full-page version 152 for output by the I/O process 86 to the requesting client.

15 On the other hand, if the display capacity information indicates that the requesting client has a miniature display 98, the data-retrieval process 24 issues a summary-page data request to a summary-providing process 34 executing on a summary-providing computer 30. The summary-providing process 34 retrieves a summary-page version 35 of the web page from a summary database 36. If no such summary-page version 35 is 20 available, the summary-providing process 34 establishes communications with the full-page providing process 18 to retrieve the full-page version 152. Upon receipt of the full-page version 152, the summary-providing process 34 creates a summary-page version by summarizing the full-page version 152 to fit within the display capacity of the miniature display 98. In either case, the summary-page version 35 is then transmitted to the data-retrieval process 24 and then through the I/O process 86 for output to the requesting 25 hand-held computer 15.

FIG. 2 shows a first window 26 displaying an exemplary full-page version 40 of a web page as seen on the conventional display 96 of FIG. 1. FIG. 2 also shows two smaller windows, a second window 27A and a third window 27B, as seen on the 30 miniature display 98 of FIG. 1. The second window 27A displays the same full-page version 40 of the web page as the first window 26. The third window 27B displays an exemplary summary-page version of the web page.

35 While browsing with a hand-held computer 15, a user may encounter a summary-page version of a web page containing information of particular interest. Such a user may wish to view a full-page version of the same web page during a later browsing session on

5 a desktop computer 11 having a conventional display 96. To avoid having to jot down the address to the web page, the system creates and stores a virtual bookmark leading to the web page. In one embodiment of the invention, a user interacts with the window to cause the transmission, to the server 12, of a "remember" instruction, together with information identifying the web page.

10 Each window 26,27A,27B also includes a "Remember" button 70,70A that, when selected by a user, causes the address of the web page being displayed in the window 26,27A,27B to be transmitted to the I/O process 86 running on the server 12. The I/O process 86 then transmits the address information to a remember/reminisce process 43 that communicates with a virtual-bookmark process 41 on a user-profile computer 39. In response to an instruction from the I/O process, the virtual-bookmark process 41 stores the virtual bookmark 33 to be stored in a user-profile database 38 maintained on the user-profile computer 39. The virtual bookmark 33 typically includes the web page address, or URL, to enable retrieval of the web page, and a title to enable the user to easily recognize the web page on a list of available web pages.

15 20 The illustrated "Remember" button 70,70A is but one user-interface element for storing a link to a web page. In alternative embodiments, a user stores a link to a web page by choosing a menu command or, by uttering pre-defined words. The "remember" instruction can also be programmed to transmit additional information to the user-profile computer system 39. Such additional information can include, for example, information 25 regarding the user. Such information can be used for marketing purposes or for finding additional pages of interest for the user.

25 30 At a subsequent browser session on a desktop computer 11 the user may want to retrieve stored bookmark information from the user-profile database 38. Referring again to FIG. 2, each window 26,27A,27B also includes a "Reminisce" button 74,74A that, when selected by the user, causes the remember/reminisce process 43 to transmit a bookmark request to the virtual-bookmark process 41. The virtual-bookmark process 41 then retrieves virtual bookmark 33 from the user-profile database 38 and assembles a reminisce page 76 that lists the titles of all web pages that the user has saved using the "Remember" button. Clicking on any title in the reminisce page causes an appropriate 35 version of the corresponding web page to be loaded.

5 FIG. 3 shows a window 106 displaying an exemplary reminisce page 76. The reminisce page 76 displays a list of titles 108A-E representing previously remembered bookmarks 33. As indicated by the underlining, the titles 108A-108E lie within active regions. Each active region has a target site corresponding to the remembered web page. As a result, a user who views the reminisce window 76 can readily jump to one of the
10 remembered web pages listed in the reminisce window 76 by clicking on its corresponding title.

15 Referring again to FIG. 2, the illustrated "Reminisce buttons" 74,74A are but one user-interface element for executing instructions for recalling remembered links to user-selected target documents. In alternative embodiments, a user can execute those instructions by choosing a menu command or by uttering pre-defined words.

20 As suggested by FIG. 1, the summary database 36, the user-profile database 38 and the full-page database 150 are associated with computers 30, 39 and 14 that are remote from the client system 12. However, in an alternative embodiment, the summary database 36, the user-profile database 38 and the full-page database 150 can be maintained at the server 12.

25 Although FIG. 1 illustrates multiple computers 12,14,30,39 in communication over an internet connection 16, it will be understood that other connections between computer systems are within the scope of the invention. For example, the computers 12,14,30,39 can be connected through a local area network.

30 The summary-providing computer system 30 includes software for maintaining a file structure for storage of summaries of large numbers of documents. These summaries can be created in a variety of ways. For example, human editors can be employed to create the summaries. Alternatively, summaries can be machine generated by a summary generation engine. The specific manner in which the summaries are generated is not important to the structure and operation of the invention.

35 By convention, the summary-providing computer system 30 maintains the summaries in directories that are named to correspond to the URL leading to the document being summarized. For example, a summary of the document found at

"<ftp://www.mwdesign.co.uk>"

5 would be kept in a directory named

"www.mwdesign.co.uk"

in a file structure accessible to the summary-providing computer system 30. This is
advantageous since the summary-providing computer system 30 can then access the
summary by simply stripping away the domain name prefixed to the summary URL
10 already provided by the data-retrieval process 24.

One of ordinary skill in the art will recognize that other conventions for storing
full-page data can be devised. The selection of such a convention is a mere
implementation detail. Hence, a convention other than those specifically disclosed herein
is within the scope of the present invention.

15 The summary pages presented can include interactive features in addition to those
already described. For example, the summary pages may include a note-appending
feature to allow a user to associate text of other objects with a particular summary. Or the
summary page can include a facility for executing a customized user-defined script. Such
a script may cause transmission of the full-page data to another application, for example
20 by email.

25 A typical browser process provides for the display of a page, within a window,
that includes "active" regions. The active regions are associated with instructions to be
executed upon the occurrence of an event within an active region. By far the most
common instructions provided on a typical page are instructions to jump to a specified
location upon the occurrence of a mouse-click within the active region. Other events can
also cause the execution of instructions. In particular, the entry of a mouse pointer into an
active region, without a click of the mouse button, is an event that can be used to trigger
the execution of instructions associated with that region.

30 The foregoing detailed description describes but one of many embodiments of the
invention. It is therefore intended to be illustrative of the invention and not to be limiting
in any way. For example, the description describes a system having a plurality of
different computer systems interconnected by a global computer network such as the
internet. However, it will be appreciated by one of ordinary skill in the art to which the
invention pertains that the different computer systems can be integrated into a smaller

5 number of computer systems or into a single computer system. It will also be
appreciated by one of ordinary skill in the art that the different computer systems can be
interconnected by networks other than the internet. Although the description suggests that
the different computer systems that participate in the implementation of the method of the
invention are geographically dispersed, one of ordinary skill will recognize that this need
10 not be the case. Two or more of these different computers can be located proximate to
each other without departing from the scope of the invention.

15 The specific embodiment set forth above describes a system in which the output
data is displayed as text and graphics on a computer systems monitor or output screen.
However, this is not intended to preclude the use of other output systems. For example,
depending on the nature of the output device, a computer system incorporating the
invention can also provide audible output.

20 The specific embodiment set forth above describes a system in which user input is
achieved by using a mouse or other pointing device connected to a computer. This is not
meant to preclude the use of other mechanisms for providing input. For example, a user
may provide input by speaking commands, using an eye-tracking device, or through a
command line interface and keypad.

25 The specific embodiment set forth above illustrates several computers that are in
communication with the system over several different communication connections. These
connections can be, for instance, a telephone modem, a co-axial modem, an Ethernet
device, or a wireless transmitter/receiver. It will be understood that other communication
connections are within the scope of the invention.

30 The specific embodiment set forth above illustrates multiple interface devices on
the system. Each interface device represents either a separate communication link or an
individual port of a multi-ported communications device. Each interface device
establishes two-way communication according to a suitable communications protocol,
such as, telephone modulation/demodulation, digital subscriber line, Ethernet,
BLUETOOTH(tm) or local area network. It will be understood that other interface
devices and communication protocols to enable communication with any suitable
input/output device are within the scope of the invention.

35 As used herein, the term "computer system" refers to a physical machine having

5 one or more processing elements and one or more storage elements in communication with the one or more of the processing elements. The term "process" refers to software that is being run on a computer system.

10 The foregoing description is thus an aid in determining the scope of the invention. It is not definitive of that scope. The limits of the invention are defined only by the appended claims.

15 The foregoing description presents an embodiment in which information is passed between a user and a computer system using conventional means such as a display monitor, a keyboard, and a pointing device, such as a mouse. However, this is not meant to preclude the use of other mechanisms for passage of information between a user and a computer system. Other mechanisms for delivering information from a user to a computer system include:

(1) an audio interface that recognizes spoken commands;

(2) an eye-tracking device that recognizes where a user's eyes are pointing and processes this information to determine the information that a user wishes to communicate;

20 Other mechanisms for delivering information from a computer system to a user include:

(1) a speech synthesizer that delivers information to a user by means of spoken words.

25 Certain terms used throughout this specification and claims, although originating in the context of conventional visual displays, are intended to include corresponding functions in the context of other types of information delivery. For example:

30 (1) "Display" refers to the presentation of information, and includes, in addition to a visual display, a spoken recitation of information. Indeed, the Latin root of "display," which is "dispicere," means "to unfold" and carries no implication of visual, as opposed to audio, presentation of information.

 (2) "Window" refers to any set of information available for presentation to a user.

5 A "window" can include information displayed in a portion of a visual computer display. However, a window can also encompass the entire visual computer display. In the context of the audio delivery of information, a "window" refers to the set of information that can be spoken to the user upon the users request.

10 (3) "Formatting" refers to the enhancement of the information to be presented to the user. In the context of a video display, formatting has its conventional meaning in the art of changing fonts and layout of text and other objects, changing display colors, and similar functions. In the context of an audio display of information, formatting may include the manner in which words are spoken, for example volume, pitch, length of intervals between words, the setting of an option to read punctuation aloud, the accent to be used, and the like.

15 In addition, the foregoing description and claims refer to the display of a document "summary." As used herein, "summary" is intended to include any information indicative of the content of the document. Such information can be derived from 20 information within the document itself or from information gathered from outside the document.

25 Although the invention has been described above in the context of one embodiment, this is but one of many embodiments that incorporate the principles of the invention. The foregoing description is illustrative the invention and is therefore not to be construed as limiting the scope of the invention. Rather, the scope of the invention is to be determined by the appended claims.

Having described the invention, and a preferred embodiment thereof, what we claim as new, and secured by letters patent is:

5

CLAIMS

1. A method for saving a location of a web page for later recall, the method comprising:
 - 10 serving a first version of the web page to a client; and in response to a client input, storing information identifying a location from which a second version of the web page is available.
 2. The method of claim 1, wherein serving a first version of the web page comprises:
 - 15 detecting hardware used by a client; requesting a first version of the web page, the first version having content consistent with the detected hardware; and serving the first version of the web page to the client.
 3. The method of claim 1, wherein storing information identifying a location from which a second version of the web page is available comprises:
 - 20 providing a user-interface element for display on the client, the user-interface element being associated with instructions for saving information identifying a location of the web page detecting a selection of the user-interface element.
 4. The method of claim 1 wherein storing information identifying a location from which a second version of the web page is available comprises:
 - 25 storing first information descriptive of the client; storing second information identifying a location from which a second version of the web page is available; maintaining a link indicative of a relationship between the first and second information.

5 5. The method of claim 1, further comprising selecting the first version to be a summary version of the web page.

6. The method of claim 1, further comprising selecting the second version to be a full-page version of the web page.

7. The method of claim 1, wherein detecting hardware used by the client comprises detecting a display capability of the client.

10 8. The method of claim 7, wherein detecting the display capability comprises determining that the display is a miniature display.

9. The method of claim 2, further comprising generating the first version of the web page.

15 10. The method of claim 9, wherein generating the first version of the web page comprises:
 retrieving the second version of the web page; and
 processing the second version of the web page to generate the first version of the web page.

20 11. The method of claim 10, wherein processing the second version of the web page comprises summarizing the second version of the web page.

12. A computer-readable medium having encoded thereon software for saving a location of a web page for later recall, the software comprising instructions for:
 serving a first version of the web page to a client; and
 in response to a client input, storing information identifying a location from which a second version of the web page is available.

25 13. The computer-readable medium of claim 12, wherein the instructions for serving a first version of the web page comprise instructions for:
 detecting hardware used by a client;

5 requesting a first version of the web page, the first version having content consistent with the detected hardware; and

10 serving the first version of the web page to the client.

13. The computer-readable medium of claim 12, wherein the instructions for storing information identifying a location from which a second version of the web page is available comprise instructions for:

15 providing a user-interface element for display on the client, the user-interface element being associated with instructions for saving information identifying a location of the web page

20 detecting a selection of the user-interface element.

14. The computer-readable medium of claim 12 wherein the instructions for storing information identifying a location from which a second version of the web page is available comprise instructions for:

25 storing first information descriptive of the client;

30 storing second information identifying a location from which a second version of the web page is available;

35 maintaining a link indicative of a relationship between the first and second information.

40 15. The computer-readable medium of claim 12, further comprising selecting the first version to be a summary version of the web page.

45 16. The computer-readable medium of claim 12, further comprising selecting the second version to be a full-page version of the web page.

50 17. The computer-readable medium of claim 12, wherein the instructions for detecting hardware used by the client comprise instructions for detecting a display capability of the client.

55 18. The computer-readable medium of claim 17, wherein the instructions for

5 detecting the display capability comprise instructions for determining that the display is a miniature display.

19. The computer-readable medium of claim 13, wherein the software further comprises instructions for generating the first version of the web page.

20. The computer-readable medium of claim 19, wherein the instructions for generating the first version of the web page comprise instructions for:

10 retrieving the second version of the web page; and

 processing the second version the web page to generate the first version of the web page.

21. The computer-readable medium of claim 20, wherein the instructions for processing the second version of the web page comprise instructions for summarizing the second version of the web page.

15 22. A method for saving a location of a full-page version of a web page, the method comprising:

 serving a summary-version of the web page;

20 in response to user-input, storing information identifying the location of the full-page version of the web page.

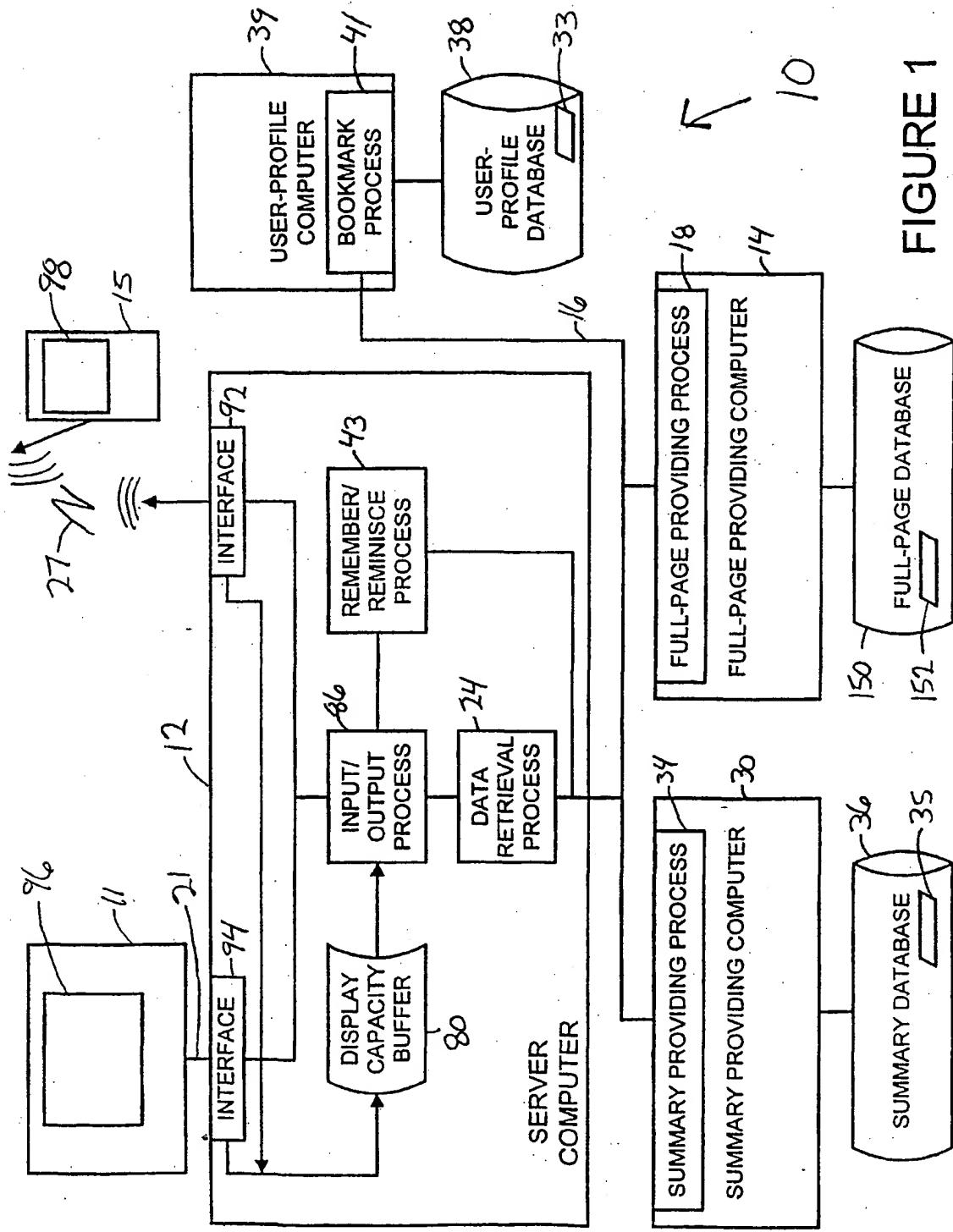


FIGURE 1

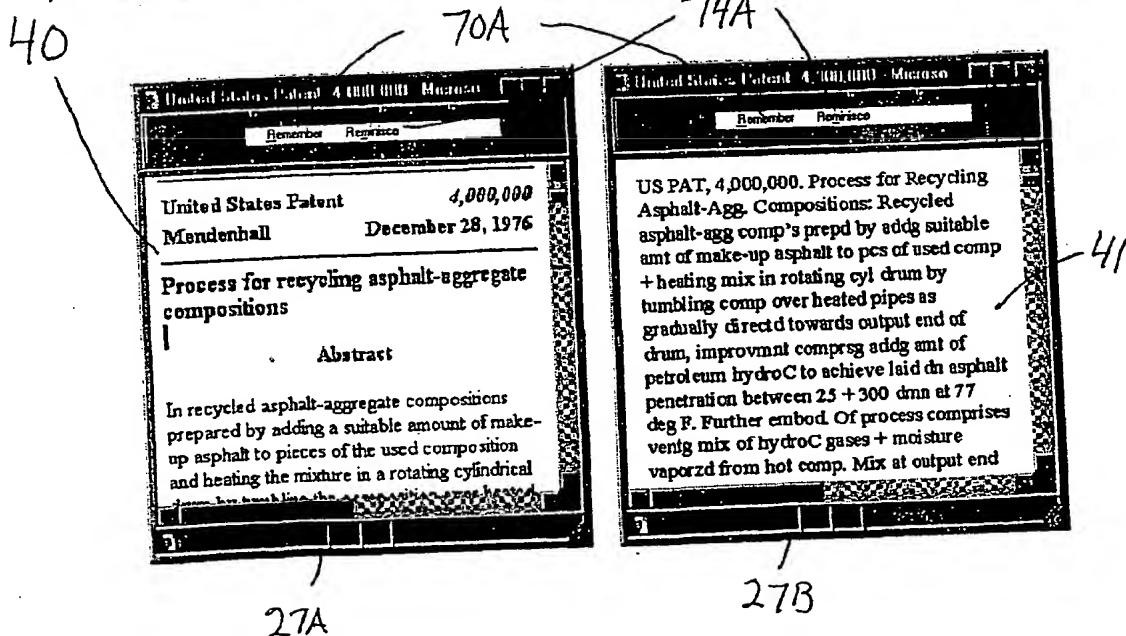
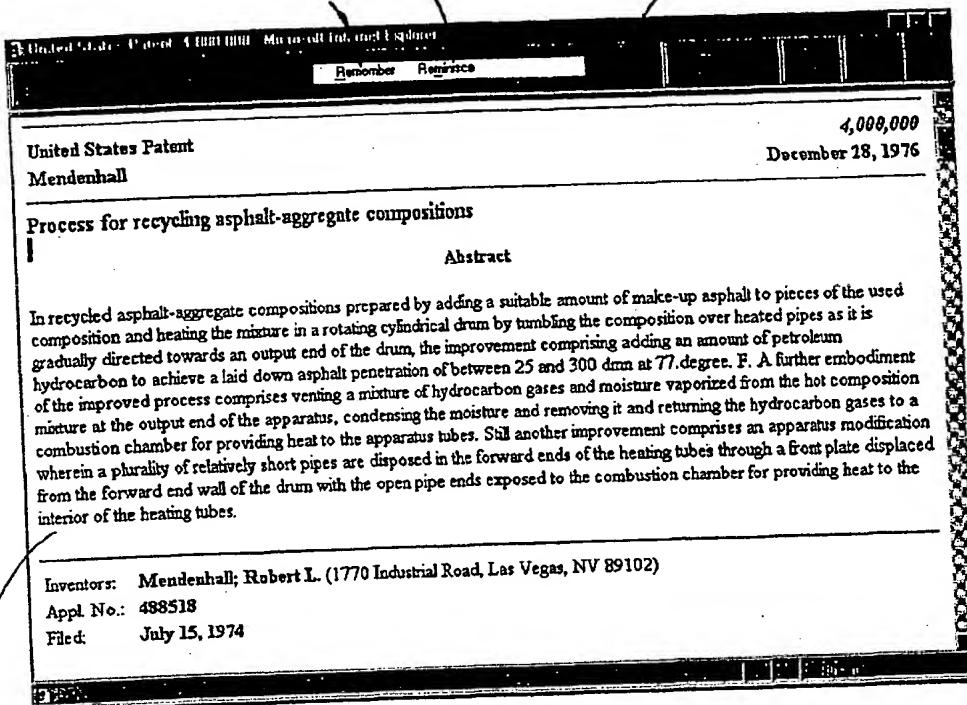


FIG. 2

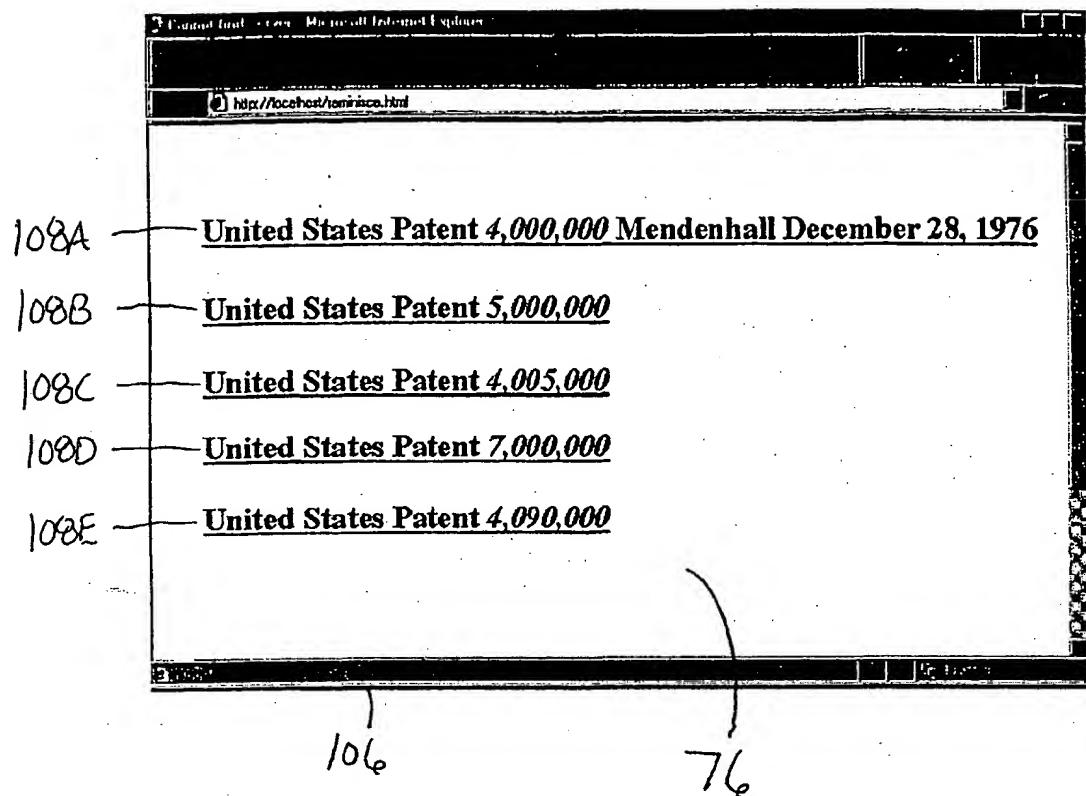


FIG. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US02/01989

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :G06F 3/00, 19/00, 15/00, 17/00

US CL :Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 709/217-219; 345/721, 757-747, 764-768, 774-778, 850-855; 707/1, 5, 501.1, 513-516, 524, 526

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched EAST 1.3 (USPAT; EPO; JPO; DERWENT; IBM_TDB)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,572,643 A (JUDSON) 5 November 1996, Abstract, FIGs. 3-5, cols. 1-3, 5, 6 & 8.	1,3-6,9-12,14-17 & 20-23
X	US 6,133,916 A (BUKSZAR et al.) 17 October 2000, Abstract, FIGs. 1-6, cols. 2-9.	1,3-6,9-12,14-17 & 20-23
Y	US 5,054,055 A (HANLE et al.) 1 October 1991, col. 5, lines 28-39 & 44-47.	2,7,8,13,18 & 19
A	US 5,708,825 A (SOTOMAYOR) 13 January 1998, Abstract, FIGs. 3-8 & 10 and associated text, "summary page".	1,3-6,9-12,14-17 & 20-23
Y	US 5,943,679 A (NILES et al.) 24 August 1999, FIGs. 5 & 6 and associated text.	2,7,8,13,18 & 19

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"
"E"	earlier document published on or after the international filing date	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"
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"P"	document published prior to the international filing date but later than the priority date claimed	"a"
		document member of the same patent family

Date of the actual completion of the international search

20 MAY 2002

Date of mailing of the international search report

13 JUN 2002

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TUAN Q. DAM
Telephone No. (703) 305-3900

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US02/01989

A. CLASSIFICATION OF SUBJECT MATTER:

US CL :

709/217-219; 945/721, 757-747, 764-768, 774-778, 850-855; 707/1, 5, 501.1, 513-516, 524, 526

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